CARVERS HARBOR

VINALHAVEN, MAINE

SURVEY

(REVIEW OF REPORTS)

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS WALTHAM, MASS.

MARCH 27, 1962

SURVEY

(REVIEW OF REPORTS)

CARVERS HARBOR, VINALHAVEN, MAINE

SYLLABUS

The Division Engineer finds that the general navigation facilities at Carvers Harbor are inadequate for the present needs of the commercial fleet and that benefits are sufficient to warrant Federal improvement. He therefore recommends modification of the existing Federal project to include an extension to the present anchorage in the northwest section of the harbor to a line generally 50 feet from the existing wharves and to a depth of 10 feet at MLW and an access channel in the northeast section of the harbor, 6 feet deep at MLW, 75 feet wide for a distance of 325 feet increasing to a width of 150 feet for a distance of 175 feet. The estimated first cost of construction is $205,000 (February 1962).

The project is recommended subject to the requirement that local interests improve the berthing areas of the wharves involved and provide a public landing with access to the improvement in the northeast section of the harbor. Costs to local interests are estimated at $25,000 for the berth and wharf improvements. The total cost to the United States is $205,000 for construction, $10,000 for preauthorization studies, and additional annual maintenance costs of $1,200 for the project. The benefit-cost ratio is 2.2.

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U. S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
424 Trapelo Road
Waltham 54, Mass.

NEDGW

SUBJECT: Survey (Review of Reports) of Carvers Harbor, Vinalhaven, Maine

TO: Chief of Engineers, ATTN: ENGCW-P, Department of the Army, Washington, D. C.

AUTHORITY

1. This report is submitted in compliance with a resolution adopted 18 January 1949 by the Committee on Public Works of the United States Senate, as follows:

> "RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE UNITED STATES SENATE, that the Board of Engineers for Rivers and Harbors, created under Section 3 of the River and Harbor Act, approved 13 June 1902, be, and is hereby, requested to review the reports on Carvers Harbor, Vinalhaven, Maine, submitted in House Document No. 624, 62nd Congress, 2nd Session, and previous reports with a view to determining if it is advisable to modify the existing project in any way at this time."

2. Based on this resolution a favorable preliminary examination report was submitted by the Division Engineer on 12 July 1957. A study of survey scope was directed by the Chief of Engineers on 3 September 1957.

PURPOSE AND EXTENT OF STUDY

3. This study considered the need for modification of the existing Federal navigation project at Carvers Harbor. A public hearing was held on 30 August 1956 in American Legion Hall, Vinalhaven, Maine in order to obtain the views of local interests. Office and field investigations and engineering and economic studies were made of improvements requested by local interests. A detailed hydrographic survey consisting of soundings and probings was made, from which the character and estimated quantities of the material to be dredged were determined. Data to substantiate waterborne commerce and boating activity in the harbor was obtained from local interests at a conference held in November 1960. Local interests and other agencies were consulted to obtain their comments on the results of the study.

DESCRIPTION

4. Carvers Harbor is located in Knox County, Maine on the southwest side of Vinalhaven Island at the mouth of Penobscot Bay, 15 miles southeast of Rockland. It is situated in one of the largest lobster fishing grounds of the nation and is in a favorable geographical proximity to the Eastern Fishing Banks off the Gulf of Maine and the Nova Scotia coast.

5. Carvers Harbor consists of an outer and inner harbor. The outer is a rectangular body of water, 2,400 feet across its mouth, between Norton Point on the west and Lane Island on the east and extending 1,200 feet inland to Potato Island with depths ranging from 20 to 30 feet in the access channel.

6. The inner harbor is the easterly of two coves, the common entrance to which lies between Potato Island and Norton Point, 1,000 feet to the west. It extends inland east of Dodge Point 2,400 feet to the head of navigation, with an average width of 1,200 feet and depths ranging from 13 to 27 feet at mean low water in the access channel.

7. Within the central portion of the inner harbor, one area of 23 acres was dredged to 16 feet below mean low water in 1903; and in 1914, two other areas in the southeastern part of the harbor, comprising a total area of 7 acres, were dredged to a depth of 10 feet. Depths in these areas are in excess of 14 and 10 feet respectively. The area between the northerly limit of the 16-foot depth project and the 1,200 feet of improved waterfront, constructed since completion of this project, has depths ranging from 2 to 6 feet below mean low water.

8. The outer harbor is exposed to the south. The dredged areas in the inner harbor are well protected except from westerly winds which have a short fetch across the outer harbor from Norton Point. Prevailing winds are southwesterly in summer and northerly in winter, but at all seasons, the heaviest gales are usually from the northeast or east. The mean range of tide is 9.4 feet. Tidal currents are negligible. The locality is shown on the Coast and Geodetic Survey Charts Nos. 310, 322 and 1203 and on the map accompanying this report.

TRIBUTARY AREA

9. Vinalhaven Island and numerous small adjacent islands constitute the Town of Vinalhaven. In 1960, the town had a total permanent population of 1,273, the majority of the people being concentrated in Vinalhaven Village, located at the head of Carvers Harbor. Lobstering, fishing, the preparation and shipment of frozen fish products, boat building and boat repairing, and the tourist-resort business are the principal commercial activities. Paved roads parallel a substantial portion of the shore of the island and a good road leads to the northern end of the island, where it connects with a ferry to North Haven, an island immediately to the north. Communication with Rockland on the mainland is maintained by telephone and motor vessel.

BRIDGES

10. There are no bridges crossing the portion of the harbor for which improvements are now desired.

PRIOR REPORTS

11. Carvers Harbor has been the subject of investigation and reports dating back to 1892. A Survey Report in 1895, published in House Executive Document No. 304, 53rd Congress, 3rd Session, was favorable to the improvement of the harbor either by the construction of a breakwater from the island to Green Ledge, south of the entrance to the harbor and dredging the harbor to a depth of 10 feet at mean low water; or to dredging a 23-acre area in the inner harbor to a depth of 16 feet at mean low water. The latter recommendation was adopted and formed the basis of the original project for Carvers Harbor. A second Survey Report in 1912, published in House Document No. 624, 62nd Congress, 2nd Session, forms the basis of the existing project which provides for dredging two areas of about 7 acres to a depth of 10 feet at mean low water in the southeastern part of the harbor.

EXISTING CORPS OF ENGINEERS PROJECT

12. The original project for Carvers Harbor was adopted by the River and Harbor Act of 3 June 1896. It consisted of dredging an area of about 23 acres in the central part of the harbor to a depth of 16 feet at mean low water. This project was completed in 1903 at a cost of about $43,000. The existing project was adopted by the

River and Harbor Act of 4 March 1913, and provides for dredging about 7 acres in the southeastern part of the harbor to the depth of 10 feet. It consists of two areas of about 3 and 4 acres, respectively, adjoining the area of approximately 23 acres dredged under the previous project. The existing project was completed in 1914 at a cost of $16,000. No maintenance work has been done in Carvers Harbor.

OTHER IMPROVEMENTS

13. There have been no improvements with respect to general navigation in Carvers Harbor other than those effected by the Federal Government.

TERMINAL AND TRANSFER FACILITIES

14. There are 25 wharves with a total berthing space of approximately 3,000 feet in Carvers Harbor. Two wharves are now in disuse. Four wharves are equipped with marine railways used in hauling boats for repairs and storage. Depths alongside the wharves range from 0 to 17 feet at mean low water. There are two publicly-owned wharves, one of which was recently purchased by the town for a parking lot and public landing. Part of the other wharf is leased to a fish packing concern and the other part was formerly leased to the Vinalhaven Port District as a terminal for the island ferry. The ferry service has been taken over by the Maine Port Authority and a new terminal constructed in 1958 at the west side of the entrance to the inner harbor. All private wharves are open to the public without charge. The majority of the wharf owners are variously engaged in selling ship supplies, fuel and lubricants, purchasing fish for cold storage and shipment, and repairing marine engines and boats. Thirteen fish houses have been constructed on two of the wharves and bait sheds may be rented on another.

15. The area is dependent on ferry service which carries cargo, automobiles and passengers to and from Rockland on the mainland where major rail and highway connections are located.

IMPROVEMENT DESIRED

16. A public hearing was held 30 August 1956 at the American Legion Hall, Vinalhaven, Maine, for the purpose of allowing local interests to express their desires concerning Federal improvement for Carvers Harbor. The hearing was attended by local officials and representatives of various business interests and civic organizations.

17. The improvements requested by local interests consist of dredging an extension to the present anchorage as close as possible to the existing wharves along the northwest waterfront to a depth of 10 feet at mean low water, and dredging an access channel 10 feet deep to the wharves including a possible public landing in the northeast section of the harbor.

18. Proponents for the extension to the present anchorage claim that the needs of the port have changed since 1914, when the harbor was last dredged under the existing project. At that time, only one wharf existed on the northwest waterfront abutting the original project. Since then, this entire waterfront has been developed and the major part of the waterborne commerce of the port is handled in this area. Local interests claim that dredging this area will permit maneuvering and docking of boats at low water and would reduce tidal delays to the larger fishing vessels, cargo and passenger vessels and oil tankers.

19. The Town has purchased a wharf in the northeast section of the harbor for use as a public wharf in close proximity to the business district. An access channel to this wharf and other wharves in the area is desired. Because of the shallow depths in this area, navigation is possible only at the higher stages of tide, except for the smallest of vessels. Ledge rock underlying ordinary material exists over this section of the harbor.

20. A conference was held in Vinalhaven in November 1960 with town officials to determine whether the needs of navigation had changed since the public hearing in 1956 and to obtain additional data on the present use of the harbor. Local interests reaffirmed their original request for desired improvement and indicated that only minor changes had occurred in harbor use.

EXISTING AND PROSPECTIVE COMMERCE

21. Although fishing is the principal activity of Carvers Harbor and the Village of Vinalhaven at the head of navigation is of importance due to its shipment of frozen fish, much activity takes place along the waterfront in handling the necessities of life for an island population. Available records of tonnage reported for the port totaled approximately 8,600 tons in 1959. Of this, about 2,400 tons consisted of shellfish, fish and fish products, and 6,200 tons were variously divided among fuel oil, gasoline, oil, coal, wood manufactures, salt, and inedible animal products. Reported ferry traffic between Vinalhaven and Rockland on the mainland consisted of approximately 10,500 passengers in 1959.

VESSEL TRAFFIC

22. The permanent commercial fleet of Carvers Harbor is composed of 68 lobster boats, 2 draggers and 5 freighters. The total estimated value of the fleet is nearly $200,000. The lobster boats vary from 2 to 4.5 feet in draft and 18 to 42 feet in length. The two draggers vary from 4.5 to 5 feet in draft and 43 to 52 feet in length. The freighters range from 4 to 7 feet in draft and 42 to 72 feet in length.

23. Twenty-five sardine carriers with lengths ranging from 50 to 90 feet having drafts of about 8 feet use Carvers Harbor as a base when herring are running in the area. Six draggers ranging from 45 to 60 feet in length fish from the harbor several weeks during the summer and two or three boats at a time, ranging up to 90 feet in length, stop overnight during bad weather.

24. There are no actual records kept showing the vessel trips made by all of the fishermen. Local interests claim that 50 percent of the lobster boats in the permanent Carvers Harbor fleet operate the year round, making approximately 200 trips each. The smaller boats operate during the summer and fall averaging 100 to 150 trips each. Trawl fishing boats make 20 to 40 trips of 1 day duration during the summer season. Local interests reported that cargo and passenger boats, large fishing vessels and carriers, and oil tankers with drafts ranging from 3 to 9 feet used the port for a total of 1,704 vessel trips in 1959.

DIFFICULTIES ATTENDING NAVIGATION

25. Carvers Harbor is fairly well protected from seas and winds. Sufficient anchorage areas with adequate depths are available. The principal difficulties attending navigation in Carvers Harbor are concerned with the maneuvering and docking of boats in the northwest and northeast sections of the harbor at lower tidal stages. Lobster boats and draggers drawing upward of 3 to 4 feet are forced to wait for adequate tide before provisioning their boats or selling their catch in an area where the controlling depth is 3 feet. Cargo boats and oil tankers drawing 6 to 9 feet utilize an area in the northwest section of the harbor where the controlling depth is 5 feet at mean low water and are subjected to costly tidal delays, and poor maneuvering conditions.

WATER POWER AND OTHER SPECIAL SUBJECTS

26. The waterway under consideration is tidal. There are no problems pertaining to water power, flood control, pollution or related subjects. The desired improvement would have no adverse effect on wildlife or shellfish. The comments and recommendations of the Fish and Wildlife Service are discussed under coordination with other agencies and the full text of their report is given in Appendix B.

PLAN OF IMPROVEMENT

27. At the public hearing held in Vinalhaven, Maine on 30 August 1956, local interests requested dredging an anchorage extension 10' deep in the northwest section of the harbor and an access channel 10' feet deep to a wharf in the northeast section of the harbor.

28. The Town of Vinalhaven purchased a wharf in the northeast section in 1958 for a parking lot and for use as a public landing. Local officials feel that the proximity of this wharf to the business district and the marine repair yards make this location desirable. However, shoal conditions make access to the wharf impossible for any but shallow draft vessels on the lower stages of the tide. In 1959, the Town meeting voted funds to improve the wharf. Any final plans for development of this wharf is contingent on harbor improvement by the Federal Government.

29. Based on the hydrographic and probing survey made of Carvers Harbor, a channel to the northeast section at a depth of 10 feet as requested by local interests would require the extensive removal of ledge rock in the access channel and is estimated to cost over one-half million dollars. Of the boats expected to use the wharf for procuring supplies and services and unloading their catch, very few have drafts greater than 4 feet. Because these craft do not require 10 feet, this depth could not be justified. A depth of 6 feet would be adquate for these boats.

30. In consideration of the foregoing, a plan of improvement suited to the navigation needs would provide:

a. An extension to the present anchorage in the northwest section of the harbor to a line generally 50 feet from the existing wharves and to a depth of 10 feet at M.L.W.

b. An access channel in the northeast section of the harbor, 6 feet deep at M.L.W., 75 feet wide for a distance of 325 feet increasing to a width of 150 feet for a distance of 175 feet, to form a basin.

31. Dredging in the harbor would not eliminate tidal delays without improvement in the berthing areas of the wharves involved. Therefore, the recommendation to dredge an anchorage extension and access channel is subject to the conditions that prior to construction local interests agree that:

a. The berthing areas of the wharves involved in the northwest section of the harbor would be dredged to meet the proposed anchorage extension.

b. A suitable public landing would be provided and maintained open to all on equal terms at the northeast end of the harbor with adequate supply facilities and access to the dredged channel in accordance with plans approved by the Chief of Engineers.

SHORELINE CHANGES

32. The desired improvement would have no adverse effect on the shoreline of the harbor.

REQUIRED AIDS TO NAVIGATION

33. The United States Coast Guard has been consulted in regard to establishing aids to navigation for the plan of improvement. In a letter dated 12 May 1961 the First Coast Guard District advises that should this project be pursued, no additional aids were contemplated.

ESTIMATES OF FIRST COST

34. Estimates of first cost have been made for an access channel 6 feet deep at mean low water in the northeast section of the harbor; and for this 6-foot channel plus an anchorage extension 10 feet deep at mean low water in the northwest part of the harbor. The Federal construction consists of dredging mud, sand, and gravel and removal of rock to provide the channel and anchorage. Local interests would provide berth improvements and maintain a public landing.

35. The estimates of first cost for the improvement based on price levels of February 1962, and including an allowance for contingencies, and detailed in Appendix A, are shown below:

Project Construction Cost

a. Access Channel to 6 feet at MLW - Northeast Section

Corps of Engineers	
Dredging	$ 13,000
Rock Removal	130,000
Preauthorization Study	7,000
Engineering and Design	7,000
Supervision and Administration	18,000
Total Corps of Engineers	$175,000
U. S. Coast Guard	
Aids to Navigation	0
Local Interests	
Berth Improvements	$ 3,000
Public Landing	7,000
Total Local Interests	$ 10,000 *

* Self-liquidating

TOTAL PROJECT COST (Feb 1962) $185,000

b. Access Channel to 6 feet at MLW (Northeast Section) and Anchorage Extension to 10 feet at MLW (Northwest Section)

Corps of Engineers	
Dredging	$ 43,000
Rock Removal	130,000
Preauthorization Study	10,000
Engineering and Design	8,000
Supervision and Administration	24,000
Total Corps of Engineers	$215,000
U. S. Coast Guard	
Aids to Navigation	0
Local Interests	
Berth Improvements	$ 18,000
Public Landing	7,000
Total Local Interests	$ 25,000 *

* Self-liquidating

TOTAL PROJECT COST (Feb 1962) $240,000

ESTIMATES OF ANNUAL CHARGES

36. Federal annual charges are based on an estimated project life of 100 years and an interest rate of 2 5/8 percent. The berth improvement and public landing costs are considered self-liquidating and are not included in the estimate of annual charges.

37. The annual charges include an estimate for maintenance of the improvement. The estimate of maintenance for the channel and anchorage is based on an average shoaling rate of one foot in 15 years, a total annual rate of 400 cubic yards, of which the annual rate of shoaling in the 6-foot access channel is 140 cubic yards.

38. Federal Annual Charges

a. Access Channel to 6 feet at MLW (Northeast Section)

Interest & Amortization (0.02838) ($175,000)	$ 5,000
Maintenance: Dredging (140 c.y. @ $3.00)	400
Navigation Aids	0
TOTAL PROJECT ANNUAL CHARGES	$ 5,400

b. Access Channel to 6 feet at MLW (Northeast Section) and Anchorage Extension to 10 feet at MLW (Northwest Section)

Interest & Amortization (0.02838) ($215,000)	$ 6,100
Maintenance: Dredging (400 c.y. @ $3.00)	1,200
Navigation Aids	0
Total Federal	$ 7,300
TOTAL PROJECT ANNUAL CHARGES	$ 7,300

ESTIMATES OF BENEFITS

39. Benefits have been estimated for improvement of Carvers Harbor resulting from both the dredging of an access channel to 6 feet at mean low water in the northeast section of the harbor and the dredging of this 6-foot channel plus an anchorage extension to

10 feet deep at mean low water in the northwest part of the harbor. General navigation benefits would accrue from the elimination or reduction of tidal delays to lobster boats in landing their catch, thus reducing operating costs. The provision of improved navigation conditions would also result in benefits accruing from reduction of costly tidal delays that are now incurred to oil tankers and cargo vessels.

40. The existing wharves in the northwest section of the harbor have berthing depths of about 5 or 6 feet. In this section of the harbor there is an oil tanker with a draft of 8 feet that makes 3 trips a week. A fish dealer with 8 boats having drafts ranging up to 9 feet, of which 3 boats incur tidal delays, uses another wharf. However, to realize any navigational benefits from the dredging of an extension to the existing anchorage, local interests would have to provide for deepening the berths of their wharves and any necessary dredging to gain access to the wharves from the Federal project.

41. The estimate of navigation benefits that would accrue due to elimination of tidal delays by the extension of the existing anchorage in the northwest section of the harbor is summarized below.

Draft	Vessel Trips	Controlling Depth	Average Hourly Delay Trip	Operation Cost	Delay Expense
8'	150	6'	0.9	$30	$4,050
9'	100	5'	1.7	$20	$3,400
7'	100	5'	0.9	$10	$ 900
6'	100	5'	0.6	$10	$ 600
					$8,950

42. The above values for average hourly delay are based upon trips made at random. With the scheduling of trips this delay expense could be reduced by one fourth. The net benefit that would be derived from improvement in the northwest section of the harbor by extending the existing anchorage is estimated to be $6,700.

43. It is estimated that 19 lobster boats having drafts of 3-4 feet now using wharves in the northeast section of the harbor, where the controlling depth is 2', would use the public landing if an access channel were provided. Boats with drafts in excess of 3 feet using this section of the harbor incur delays averaging 0.6 hours per trip. Full time boats average 200 trips a year. Nineteen boats averaging 200 trips a year and being delayed 0.6 hours per trip would be delayed a total of 2,280 hours annually.

44. Lobster boats now using the northwest section of the harbor must seek alternate means of supplying their boat from the business

district in town, located at the northeast corner of the harbor. Through use of the public landing in the northeast section, without incurring tidal delays, it is estimated that the average net saving in time per trip that could be achieved in provision boats over alternate means would be 15 minutes. It is estimated that 15 full-time and 15 part-time boats now using the northwest section of the harbor would use the public landing for provisioning if it were available. The remaining craft in the lobster fleet have such shallow draft that benefits from the improvement would be insignificant. Local interests state that a full-time boat makes 200 trips a year and a part-time boat makes between 100 and 150 trips a year. A saving in time of $\frac{1}{4}$ hour on each trip, would total 1,125 hours in the course of a year based on 200 trips for full-time boats and 100 trips for part-time boats.

45. Lost time and transportation costs, when supplying and trucking materials to and from their boats is considered to be at least equivalent to the operating costs of the boats or $2.75 an hour. The total tidal delay of the 20 lobster boats now using wharves in the northeast section of the harbor was previously estimated to be 2,280 hours. The total time that could be saved by the 15 full-time and 15 part-time boats now using the northwest section of the harbor is estimated to be 1,125 hours. This gives a total of 3,405 hours a year that could be saved by the elimination of tidal delays and by providing access to a public landing that is convenient to the business district. At the rate of $2.75 an hour, this would give an annual benefit of $9,400 attributable to the proposed improvement in the northeast section of the harbor.

46. During the summer months some transient recreational craft use the harbor. These vessels use the northwest section where harbor docks are located with fueling facilities that are open to the public. Although the dredging of an access channel in the northeast section of the harbor might provide some convenience to these craft, it is considered that they would not be materially benefited by the improvement. Therefore it is considered that the desired improvement would benefit only the commercial craft and would be general in nature.

47. In addition to the tangible benefits described above, certain intangible benefits would accrue from an improvement in the harbor. By making the business district more accessible with the provision of a public landing, additional revenue would be realized by the town. This benefit, although real and of significance to the area, is considered to be a secondary benefit and therefore has not been evaluated.

COMPARISON OF BENEFITS AND COSTS

48. A comparison of the estimated annual benefits and the estimated annual charges for the improvements under consideration are shown below:

(a) Access Channel to 6 feet at MLW

Annual Benefits - $ 9,400
Annual Charges - $ 5,400
B/C ratio = 1.7

(b) Access Channel to 6 feet at MLW and Anchorage Extension to 10 feet at MLW

Annual Benefits - $16,100
Annual Charges - $ 7,300
B/C ratio = 2.2

PROPOSED LOCAL COOPERATION

49. The benefits to be derived from the proposed improvement would accrue to commercial navigation and are general in nature. Therefore, the entire cost of construction would be borne by the United States.

50. Local interests should be required to agree to hold and save the United States free from damages due to the construction and maintenance of the improvement, and to provide without cost to the United States all lands, easements and rights-of-way necessary for the construction of the project and for the subsequent maintenance thereof.

51. To assure full public use of the improvement local interests should be required to maintain a public landing which would be open to all on an equal basis. This proposed landing would be located at the northeast end of the harbor and provide sufficient berths to prevent undue congestion. The cost of improving the landing and providing berths and access to the proposed channel is estimated at $10,000 and is considered to be self-liquidating.

52. To realize any navigational benefits from the dredging of an extension to the existing anchorage in the northwest section of the harbor, local interests should be required to provide for deepening the berths of their wharves and necessary dredging to gain access to the wharves from the Federal project.

53. It is anticipated that dredging will be accomplished by bucket dredging with disposal of waste materials at sea. If it is determined after detailed studies that spoil disposal areas are needed, local interests should, upon request of the Chief of Engineers and without cost to the United States, furnish any such areas required including such dikes, bulkheads and embankments as may be necessary for the initial construction and subsequent maintenance. Local interests have been consulted on the plan of improvement and the indicated requirements of local cooperation, and have provided reasonable assurance that these requirements would be met.

APPORTIONMENT OF COSTS AMONG INTERESTS

54. An apportionment of costs has been made for the improvements under consideration. The Federal and non-Federal investment resulting from this apportionment is as follows:

a. Access Channel to 6 feet at MLW

Federal Investment	
Corps of Engineers	
Construction	$168,000
Preauthorization Studies	7,000
Coast Guard	
Navigation Aids	0
TOTAL FEDERAL INVESTMENT	$175,000
Non-Federal Investment	
Berth Improvements	$ 3,000
Public Landing	7,000
TOTAL NON-FEDERAL INVESTMENT	$ 10,000 *

* Self-liquidating

TOTAL INVESTMENT (February 1962)	$185,000

b. Access Channel to 6 feet at MLW and Anchorage Extension to 10 feet at MLW

Federal Investment	
Corps of Engineers	
Construction	$205,000
Preauthorization Studies	10,000
Coast Guard	
Navigation Aids	0
TOTAL FEDERAL INVESTMENT	$215,000
Non-Federal Investment	
Berth Improvements	$ 18,000
Public Landing	7,000
TOTAL NON-FEDERAL INVESTMENT	$ 25,000 *

* Self-liquidating

TOTAL INVESTMENT (February 1962)	$240,000

COORDINATION WITH OTHER AGENCIES

55. All Federal, State and local agencies known to have an interest in the development and use of Carvers Harbor were notified of the public hearing on the proposed improvement held at Vinalhaven, Maine, on 30 August 1956.

56. The United States Coast Guard was advised of the improvement under consideration and requested to comment on aspects pertaining to their interests. By letter of 12 May 1961 the Commander of the First Coast Guard District advised that should the project be pursued, no additional aids to navigation were contemplated.

57. The regional office of the United States Fish and Wildlife Service was also requested to comment on the plan of improvement. Their report (See Appendix B) indicated that there would be no adverse effects on fish and wildlife as a result of construction of the proposed project. The Maine Department of Inland Fisheries and Game and the Maine Department of Sea and Shore Fisheries concurred in this viewpoint. They indicated further that the proposed improvement would result in savings in operating costs associated with tidal delays for lobstermen in the northeast portion of the harbor, and that fishermen in the northwest portion would benefit as a result of time saved and decreased transportation costs, when supplying and trucking materials to and from their boats.

DISCUSSION

58. Carvers Harbor is a small well protected harbor located on the southwest side of Vinalhaven Island at the mouth of Penobscot Bay. The harbor lies about 15 miles southeast of Rockland, Maine, and is situated in one of the largest lobster fishing grounds of the nation. The area immediately tributary to it is the Town of Vinalhaven which has a population of 1,273 people, according to the 1960 census. Fishing, lobstering, the preparation and shipment of frozen fish products, boat building and boat repairing, and the tourist-resort business are the principal activities of the town which is dependent on oceam transportation for receipt of its foodstuffs and other necessities. A record of vessel traffic kept at the port shows a total of 1,704 vessel trips made by oil tankers, large fishing vessels and carriers, and passenger and cargo boats with drafts ranging from 3 to 9 feet in 1959. Approximately 8,600 tons of commerce were reported in the port, consisting of fish and fish products, gasoline, oil, coal, wood manufactures, salt and inedible animal products. Available records show there were approximately 10,500 passengers transported by ferry between Rockland and Carvers Harbor in 1959.

59. Provision of adequate harbor facilities is of major importance to the livelihood of the inhabitants of Vinalhaven Island. Consideration must be given to the fact that Carvers Harbor is situated on an island, more or less isolated, and that all transportation to and from the mainland and most of the commerce is dependent on the sea. Many of the residents on the island who moor their boats in nearby coves adjacent to their property use the harbor regularly to obtain their household and other supplies.

60. The history of Federal improvement in Carvers Harbor dates back to 1896 when the original project provided for a depth of 16 feet at mean low water over an area of about 23 acres in the central portion of the inner harbor. The existing project adopted in 1913 and completed in 1914 provides for dredging about 7 acres in the southeastern part of the inner harbor to a depth of 10 feet at mean low water. It consists of two areas of about 3 and 4 acres, respectively, adjoining the area dredged under the original project.

61. The original and existing projects were adequate to serve the navigational needs in the late 1800's and early 1900's when they were authorized and dredged. At that time, only one wharf (the Old Steamboat Wharf) existed on the northwest waterfront abutting the original project. This northwest section of the waterfront has since been developed and the major part of the commerce of the port is handled in this area. Distances from the faces of the wharves in this developed section out to the limit of the original project vary from 100 to 350 feet with depths varying from 3 to 6 feet. Under existing conditions, the deeper draft vessels loaded with fish or lobsters have to wait for high water before they are able to dock. Loaded tankers delivering gasoline and oil to various commercial interests along the northwest waterfront and fishing vessels landing in the northeast section of the harbor have to wait for the higher stages of tide before entering and docking.

62. The provision of the desired and considered improvement at Carvers Harbor would result in benefits accruing from reduction or elimination of tidal delays that are now incurred to lobster and fishing boats, cargo vessels and oil tankers. Operating costs of the vessels would be reduced by a reduction in tidal delays. As this activity is commercial, the benefits to be realized would be general in nature.

63. The portion of the desired improvement to dredge an extension to the present anchorage as close as possible to the existing wharves along the northwest waterfront to a depth of 10 feet at mean low water would reduce costly tidal delays as well as increase maneuverability in this section of the harbor. The portion of the desired improvement to dredge a channel 10 feet deep at mean low water to the wharves in the northeast section of the harbor would likewise result in substantial savings by reduction of costly tidal delays. Vessels anticipated to use this harbor area have drafts which do not require this depth of water. Because of the presence of ledge rock in this section of the harbor, provision of a depth of 10 feet was considered unjustified. A depth of 6 feet in the northeast section is considered to be sufficient and is found to be economically

justified. At a meeting held on 17 November 1960, local interests stated that a channel 6 feet deep in the northeast section of the harbor would be extremely beneficial to the needs of the town.

CONCLUSIONS

64. In view of the nature of the work needed and the benefits therefrom modification of the existing Federal project is considered warranted. The benefit-cost ratio of the improvements considered is 1.7 to 1 for an access channel to 6 feet at MLW and 2.2 to 1 for this access channel in conjunction with an anchorage extension to 10 feet at MLW. Although improvement at each location is justified and could be undertaken separately, the total improvement would provide the most economical project.

RECOMMENDATION

65. Modification of the existing Federal navigation project for the improvement of Carvers Harbor, Vinalhaven, Maine, is therefore recommended to include:

a. an extension to the present anchorage in the northwest section of the harbor to a line generally 50 feet from the existing wharves and to a depth of 10 feet at MLW.

b. an access channel in the northeast section of the harbor, 6 feet deep at MLW, 75 feet wide for a distance of 325 feet increasing to a width of 150 feet for a distance of 175 feet.

66. The improvement is recommended subject to the conditions that prior to construction local interests will:

a. Hold and save the United States free from damages due to the construction and maintenance of the improvement.

b. Provide without cost to the United States all lands, easements and rights-of-way necessary for the construction of the project and for the subsequent maintenance thereof.

c. Dredge the berthing areas of the wharves involved in the northwest section of the harbor and provide access to the proposed anchorage extension.

d. Provide and maintain a suitable public landing open to all on equal terms at the northeast end of the harbor with adequate supply facilities and access to the dredged channel in accordance with plans approved by the Chief of Engineers.

e. If it is determined after detailed studies that spoil disposal areas are needed, furnish any such areas upon request of the Chief of Engineers and without cost to the United States including such dikes, bulkheads and embankments as may be necessary for the initial construction and subsequent maintenance.

67. The total cost to the United States for the recommended improvements is estimated at $215,000 with $1,200 additional annual maintenance costs. The total non-Federal costs are estimated at $25,000.

OTTO J. ROHDE
Colonel, Corps of Engineers
Acting Division Engineer

CORPS OF ENGINEERS

U. S. ARMY

RECOMMENDED IMPROVEMENT
6 FOOT ACCESS CHANNEL

RECOMMENDED IMPROVEMENT
EXTENSION OF ANCHORAGE AT DEPTH OF 10 FEET

CARVERS POND

VINALHAVEN

TOWN LANDING

150'

75'

SAND COVE

TOWN WHARF

MAINE PORT AUTHORITY FERRY TERMINAL

DODGE PT.

HARBOR

EXISTING 16-FT. ANCHORAGE (FEDERAL)

CARVERS

NORTON PT.

EXISTING 10-FT. ANCHORAGE (FEDERAL)

EXISTING 10-FT. ANCHORAGE (FEDERAL)

Flood

Ebb

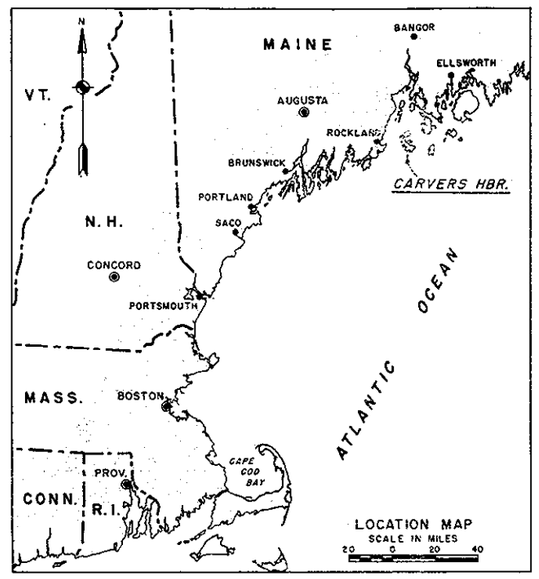
BAR I.

POTATO I.

LANE ISLAND

MAGNETIC NORTH

N



U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS, WALTHAM, MASS.

CARVERS HARBOR, MAINE

SHEET 1 OF 1

MARCH 1962

SCALE IN FEET
200 0 200 400 600

APPROVED:
CHIEF, ENGINEERING DIVISION

SUBMITTED:
CHIEF, PLANNING AND REPORTS BRANCH

CHIEF, RIVER AND HARBOR SECT.

PROJECT ENGINEER

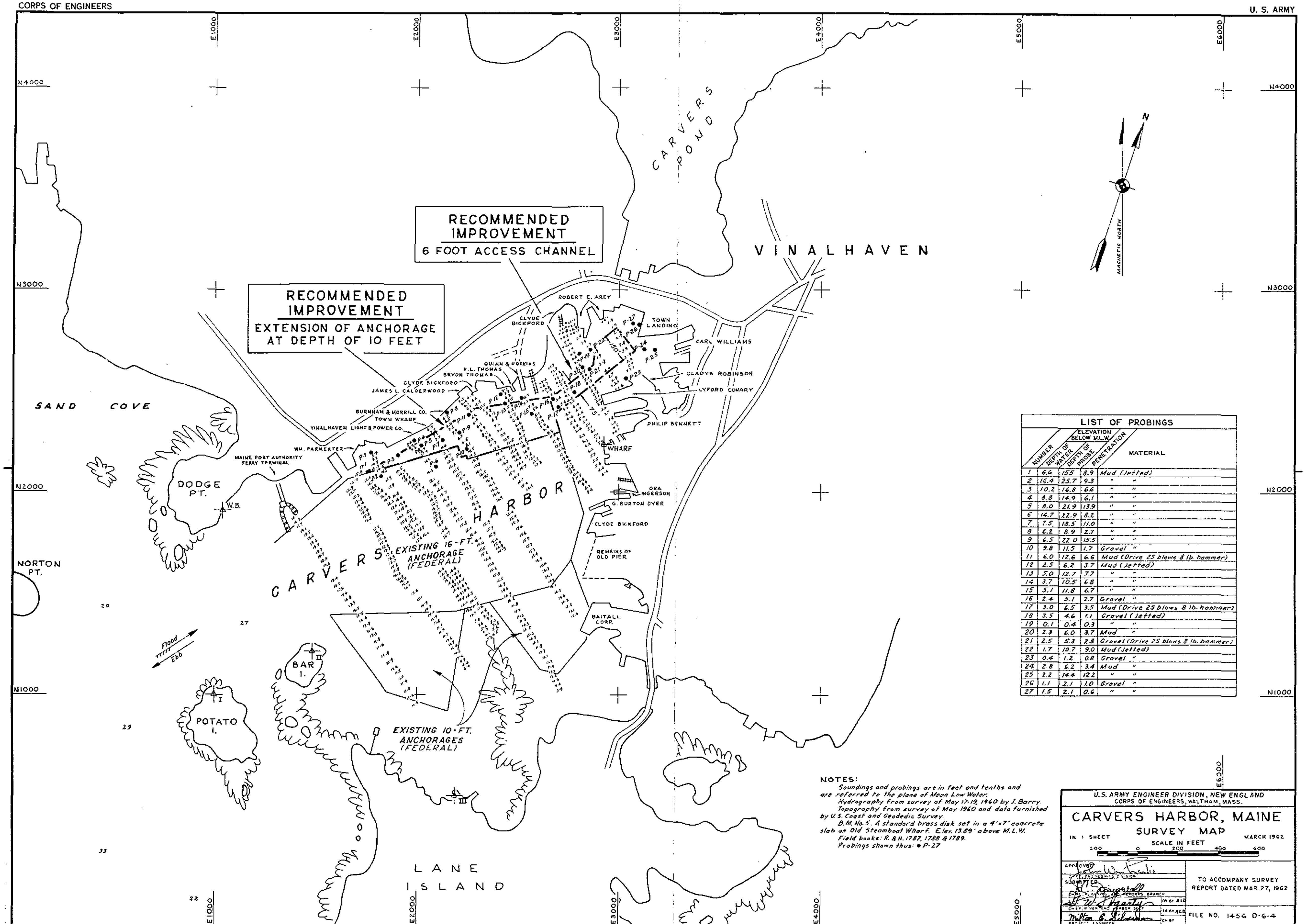
DR. BY ALD

TR. BY ALD

CH. BY

TO ACCOMPANY SURVEY REPORT DATED MAR. 27, 1962

FILE NO. 1509 0-6-4



LIST OF PROBINGS

NUMBER	DEPTH OF WATER	DEPTH OF PROBE (ELEVATION BELOW M.L.W.)	PENETRATION	MATERIAL
1	6.6	15.5	8.9	Mud (Jetted)
2	16.4	25.7	9.3	" "
3	10.2	16.8	6.6	" "
4	8.8	14.9	6.1	" "
5	8.0	21.9	13.9	" "
6	14.7	22.9	8.2	" "
7	7.5	18.5	11.0	" "
8	6.2	8.9	2.7	" "
9	6.5	22.0	15.5	" "
10	9.8	11.5	1.7	Gravel "
11	6.0	12.6	6.6	Mud (Drive 25 blows 8 lb. hammer)
12	2.5	6.2	3.7	Mud (Jetted)
13	5.0	12.7	7.7	" "
14	3.7	10.5	6.8	" "
15	5.1	11.8	6.7	" "
16	2.4	5.1	2.7	Gravel "
17	3.0	6.5	3.5	Mud (Drive 25 blows 8 lb. hammer)
18	3.5	4.6	1.1	Gravel (Jetted)
19	0.1	0.4	0.3	" "
20	2.3	6.0	3.7	Mud "
21	2.5	5.3	2.8	Gravel (Drive 25 blows 8 lb. hammer)
22	1.7	10.7	9.0	Mud (Jetted)
23	0.4	1.2	0.8	Gravel "
24	2.8	6.2	3.4	Mud "
25	2.2	14.4	12.2	" "
26	1.1	2.1	1.0	Gravel "
27	1.5	2.1	0.6	" "

NOTES:

Soundings and probings are in feet and tenths and are referred to the plane of Mean Low Water.

Hydrography from survey of May 17-19, 1960 by J. Barry.

Topography from survey of May 1960 and data furnished by U.S. Coast and Geodetic Survey.

B.M. No. 5. A standard brass disk set in a 4'x7' concrete slab on Old Steamboat Wharf. Elev. 13.89' above M.L.W.

Field books: R. & H. 1787, 1788 & 1789.

Probings shown thus: ● P-27

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS, WALTHAM, MASS.

CARVERS HARBOR, MAINE

SURVEY MAP

IN 1 SHEET — MARCH 1962

SCALE IN FEET: 200 0 200 400 600

APPROVED: John Wm. [signature] — Chief, Engineering Division

SUBMITTED: [signature] — Chief, Planning and Reports Branch

[signature] G. W. [signature] — Chief, River and Harbor Sect.

Milton E. [signature] — Project Engineer

DR BY ALD — TR BY ALD — CH BY

TO ACCOMPANY SURVEY REPORT DATED MAR. 27, 1962

FILE NO. 1456 D-6-4

SURVEY OF CARVERS HARBOR, VINALHAVEN, MAINE

APPENDIX A

ESTIMATE OF FIRST COST & ANNUAL CHARGES

1. The first cost is given below for the improvements considered in this report, separated and combined. Federal construction consists of dredging and rock removal to provide an extension to the existing anchorage, 10 feet deep and an access channel 6 feet deep, 75 and 150 feet wide.

2. Probings made during the study indicate that materials to be removed consist of mud, sand, gravel and rock. It is expected that dredging will be done by bucket dredge with spoil being disposed of at sea. Dredging quantities are in terms of in-place measurement and include an allowance of 1 foot of overdepth. Side slopes of 1 vertical on 3 horizontal were used in earth and 1 vertical to 1 horizontal in rock. Cost estimates are based on price levels prevailing in February 1962.

3. The detailed estimates of cost is tabulated as follows:

PROJECT COST ESTIMATE

AND

ANNUAL CHARGES

Cost Account Number		Anchorage Extension 10' deep	Access Channel 6' deep	10-ft Anchorage Extension & 6 ft Access Channel
	Volume:			
	Dredging	18,300 c.y.	6,500 c.y.	24,800 c.y.
	Rock Removal	0	1,500 c.y.	1,500 c.y.
	Unit Price			
	Dredging	$2.75	$1.70	$1.50
	Rock Removal	0	$75	$75
09	Dredging	$50,000	$ 11,000	$ 37,000
	Rock Removal	0	113,000	113,000
			124,000	150,000
	Contingencies 15%	8,000	19,000	23,000
		$58,000	$143,000	$173,000
29	Preauthorization Studies	3,000	7,000	10,000
30	Engineering and Design	5,000	7,000	8,000
31	Supervision and Admin.	9,000	18,000	24,000
	TOTAL PROJECT COST (Federal)	$75,000	$175,000	$215,000

Cost Account Number		Anchorage Extension 10' deep	Access Channel 6' deep	10-ft Anchorage Extension & 6 ft Access Channel
	TOTAL NON-FEDERAL COST			
	Lands & Damages	0	0	0
	Relocations	0	0	0
	Other			
	Cash Contribution	0	0	0
	Berth Improvements	15,000	3,000	18,000
	Public Landing	0	7,000	7,000
	TOTAL NON-FEDERAL COST	$15,000 *	$10,000 *	$25,000 *
	* Self-liquidating			
	ANNUAL CHARGES			
	Federal (100 yr. life - 2 5/8%)			
	Interest & Amortization (.02838)	2,200	5,000	6,100
	Maintenance			
	260 cy @ $3.00) 140 cy @ $3.00)	800	400	1,200
	TOTAL ANNUAL CHARGES (Federal)	$3,000	$5,400	$7,300
	Benefits	$6,700	$9,400	$16,100
	B/C Ratio	2.2	1.7	2.2
	Incremental Charges			1,900
	Incremental Benefits			6,700
	Incremental B/C			3.5

APPENDIX B

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

October 4, 1961

Division Engineer
New England Division
U. S. Corps of Engineers
424 Trapelo Road
Waltham 54, Massachusetts

Dear Sir:

This letter constitutes our conservation and development report on the navigation study of Carvers Harbor, Vinalhaven, Maine.

The improvement under consideration consists of dredging an anchorage extension 10 feet deep at mean low water in the northwest section of the harbor and an access channel to a proposed public landing, 10 feet deep at mean low water, in the northeast section of the harbor. An alternate proposal in the northeast portion is to consider a 6-foot channel as minimal requirement to facilitate harbor activity. We understand that disposal of spoil material will be at sea.

This Service concludes that there would be no adverse effects on fish and wildlife as a result of construction of either proposed project, and this viewpoint is concurred in by the Maine Department of Inland Fisheries and Game and the Maine Department of Sea and Shore Fisheries.

We are in agreement with the Maine Department of Sea and Shore Fisheries that the principal commercial fishery benefits resulting from the proposed harbor would be a savings in operating costs associated with tidal delays for lobstermen in the northeast portion of the harbor, and that fishermen in the northwest portion would benefit as a result of time saved and decreased transportation costs, when supplying and trucking materials to and from their boats.

However, we do not have available any definitive study of local boat operating or supplying costs or any detailed tidal delay data which would enable us to place a monetary value on these benefits which

fall outside the realm of direct fish and wildlife aspects.

The opportunity to report on this project is appreciated.

Sincerely yours,

M. A. Marston
Acting Regional Director

John T. Gharrett
Regional Director
Bureau of Commercial Fisheries

CARVERS HARBOR, VINALHAVEN, MAINE

Information Called for by
Senate Resolution 148, 85th Congress
Adopted 28 January 1958

1. Navigation Problems. - Carvers Harbor is located on the southwest side of Vinalhaven Island, Maine at the mouth of Penobscot Bay, 15 miles southeast of Rockland. It consists of an outer and inner harbor. The outer harbor is a rectangular body of water, 2,400 feet across its mouth and extending 1,200 feet inland with depths ranging from 20 to 30 feet in the access channel. The inner harbor is the easterly of two coves. It extends inland 2,400 feet to the head of navigation, with an average width of 1,200 feet and depths ranging from 13 to 27 feet in the access channel. The outer harbor is exposed to the south. The dredged areas in the inner harbor are well protected except from westerly winds which have a short fetch across the outer harbor. Fishing, lobstering, the preparation and shipment of frozen fish products, boat building and repairing, and the tourist-resort business are the principal activities of the town which is dependent on ocean transportation for receipt of its foodstuffs and other necessities. The mean range of tide is 9.4 feet.

2. Carvers Harbor is fairly well protected from seas and winds and has adequate anchorage areas. The principal difficulties attending navigation are concerned with the maneuvering and docking of boats in the northwest and northeast sections of the harbor at lower tidal stages.

3. Improvement Considered. - Local interests expressed the need for dredging an extension to the present anchorage as close as possible to the existing wharves along the northwest to a depth of 10 feet at mean low water and dredging an access channel 10 feet deep to the wharves including a public landing in the northeast section of the harbor. To obtain the desired depth in the northeast section would require removal of ledge rock. As the number of boats with drafts greater than 4 feet that would use this section of the harbor is small, a 10-foot depth could not be justified. Consideration was given to providing a depth of 6 feet in that section of the harbor.

4. Recommended Improvements. - To allow boats to reach the wharves at any tide stage, the improvement recommended provides for an extension to the present anchorage in the northwest section of the harbor to a line generally 50 feet from the existing wharves and to a depth of 10 feet at MLW and an access channel in the northeast section of the harbor, 6 feet deep at MLW, 75 feet wide for a distance of 325 feet increasing to a width of 150 feet for a distance of 175 feet. Estimated first costs, annual costs and annual benefits based on February 1962 price levels; a 100-year project life, and an interest rate of 2-5/8 percent are as follows:

a. Estimated First Costs of Construction:

Federal	$ 205,000	*
Non-Federal	0	**
Total Estimated First Cost of Construction	$ 205,000	

* Excludes preauthorization costs of $10,000
** Non-Federal costs of $25,000 for berth and wharf improvements are considered self-liquidating and are not included in the estimate.

b. Estimated Annual Charges:

	Federal	Non-Federal	Total
Interest & Amortization	$ 6,100	0	$ 6,100
Maintenance	1,200	0	1,200
Total Estimated Annual Charges	7,300	0	$ 7,300

c. Estimated Annual Benefits:

	General	Local	Total
Commercial Fleet Elimination of Tidal Delay in Northwest Section	$ 6,700	0	$ 6,700
Elimination of Tidal Delay in Northeast Section	9,400	0	$ 9,400
Recreational Boating	0	0	0
Total Estimated Annual Benefits	$16,100	0	$16,100

d. Benefit-Cost Ratio = 2.2

5. Apportionment of Cost and Local Cooperation. - The benefits to be derived from the proposed improvement would accrue to commercial navigation and are general in nature. Therefore, the entire cost of construction would be borne by the United States. The authorized project would be subject to the conditions that local interests:

a. Hold and save the United States free from damages due to the construction and maintenance of the improvement.

b. Provide without cost to the United States all lands, easements and rights-of-way necessary for the construction of the project and for the subsequent maintenance thereof.

c. Dredge the berthing areas of the wharves involved in the northwest section of the harbor and provide access to the proposed anchorage extension.

d. Provide and maintain a suitable public landing open to all on equal terms at the northeast end of the harbor with adequate supply facilities and access to the dredged channel in accordance with plans approved by the Chief of Engineers.

e. If it is determined after detailed studies that spoil disposal areas are needed, upon request of the Chief of Engineers and without cost to the United States, furnish any such areas required including such dikes, bulkheads and embankments as may be necessary for the initial construction and subsequent maintenance.

6. Discussion. - The measures recommended provide a logical and economically feasible means of meeting the needs of navigation in the harbor. The project is considered justified on the basis of studies and criteria in the report. Proposed local cooperation is consistent with other similar projects.